

Conceptual Design for White Sturgeon Passage Facilities at the Hells Canyon Complex (E.3.1-6, Chapter 4)

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I. Introduction

The resource agencies identified passage of white sturgeon through the Hells Canyon Complex as an issue. This chapter identifies passage options and constraints associated with passing white sturgeon upstream and downstream through the Hells Canyon Complex. The Applicant presents a comprehensive array of upstream and downstream options. The options are based on existing knowledge from Russian and Columbia River white sturgeon passage facilities.

II. Conclusions

1. “7.3.1. Brownlee Dam

We considered the capture and transport option to be the most promising option for passing white sturgeon at Brownlee Dam. There is an existing boat ramp located approximately 3 miles upstream of the dam that could be used as an access point. Assuming the purchase of a new boat and trailer, a transport vehicle, and a storage facility, we estimated that implementing this option would cost \$250,000, with an O&M rate of 25%. A second option, trap and transport, would cost an estimated \$3,190,000, with an estimated O&M rate of 10% (Table 11).” (Page 49, Paragraph 1)

“7.3.2. Oxbow Dam

We considered the capture and transport option to be the most promising option for passing sturgeon at Oxbow Dam. There is an existing boat ramp located approximately 2 mi upstream of the dam that could be used as an access point. Assuming the purchase of a new boat and trailer, a transport vehicle, and a storage facility, we estimated that implementing this option would cost \$250,000, with an O&M rate of 25%. Alternatively, a trap and transport system could be located at the powerhouse intake or at the dam itself. We estimated the costs of a trap and transport system at \$3,280,000, with an O&M rate of 10% (Table 12).” (Page 49, Paragraph 2)

“7.3.3. Hells Canyon Dam

For Hells Canyon Dam, we estimated costs for two downstream passage options—capture and transport and pressurized passage. We estimated the cost of a capture and transport system at this dam at \$250,000, with an O&M rate of 25%.” (Page 49, Paragraph 3)

Response: The BLM agrees with these conclusions. The relative uncertainty of white sturgeon migration behavior, coupled with high cost of building passage facilities that may not be used, supports their conclusion that trap and transport is the only practical solution.

2. “7.4.1. Hells Canyon Dam

“We estimated costs for two options for upstream passage at Hells Canyon Dam. We considered capture and transport to be the most promising option for Hells Canyon Dam. Assuming the costs of improving access to the river and purchasing a new boat and trailer, a transport vehicle, and a storage facility, we estimated that implementing this option would cost \$300,000, with an O&M rate of 25%.” (Page 49, Paragraph 5)

“7.4.2. Oxbow Dam

We considered capture and transport to be the most promising option for passing sturgeon at Oxbow Dam. The river could be accessed near Pine Creek. Assuming the purchase of a new boat and trailer, a transport vehicle, and a storage facility, we estimated the cost of implementing this option at \$250,000, with an O&M rate of 25%.” (Page 50, Paragraph 2)

“Another possibility for passing fish at Oxbow Dam is a trap and transport facility. At one time, a trap and transport facility was operated adjacent to the spillway. As with the Hells Canyon Dam estimate, we assumed that the existing facility would be upgraded. Section 7.4.1. discusses possible upgrades and our cost estimates for this option in more detail. We estimate the cost of implementing this option at \$3,360,000, with an O&M rate of 10% (Table 15).” (Page 50, Paragraph 3)

“7.4.3. Brownlee Dam

We considered capture and transport to be the most promising option for passing sturgeon at Brownlee Dam. Assuming the purchase of a new boat and trailer, a transport vehicle, and a storage facility, we estimated the cost of implementing this option at Brownlee Dam at \$250,000, with an O&M rate of 25%.” (Page 50, Paragraph 4)

“Trap and transport is another possibility for passing sturgeon at Brownlee Dam. The facility could be located at the toe of the dam at an elevation of approximately 1,850 ft. Use of this location would require that we route a conduit to the tailrace. For comparison, the cost for a new trap and transport facility with a barrier dam at Mossyrock Dam was estimated at \$4,500,000. Since no barrier dam is included in the design of a trap and transport option at Brownlee Dam, we adjusted the cost estimate for this facility to \$3,600,000, with an O&M rate of 10% (Table 16).” (Page 50, Paragraph 5)

“ As an alternative to transporting sturgeon obtained through either trapping or capture, a fish lift would raise sturgeon over the dam and release them into the forebay. Including a lift in a capturing or trapping option increased our estimates of these two options by

\$2,500,000, for a total cost of \$2,750,000 or \$6,100,000, respectively, with an O&M rate of 10%.” (Page 50, Paragraphs 6)

Response: The BLM agrees with this conclusion that trap and transport is the only practical solution to white sturgeon passage at the Hells Canyon Complex. The BLM does not support the cost figures in that they are only preliminary estimates.

III. Study Adequacy

It is clearly stated that this study is a preliminary effort to gather what is currently known about sturgeon passage. The authors discuss a full range of possible alternatives. Additional work will be required before this study is complete, but it is very likely that the proposed option is the only one that will be feasible. The cost figures are preliminary and are not considered to be accurate.

IV. BLM Conclusions and Recommendations

Conclusions

The capture and transport option is promising because it can be accomplished with existing technology. It clearly can be accomplished based on the Applicant’s white sturgeon studies that have required the capture of many white sturgeon over the entire length of the Snake River. Capture and transport would require working with Idaho Fish and Game and Oregon Department of Fish and Wildlife to develop a plan to catch predetermined numbers of sturgeon by size group that would be moved below, within, and above the HCC. This would improve the genetic interchange and possibly increase population numbers in reaches where the fish are depleted.

The Applicant acknowledges that in reaches with poor water quality there will need to be improvements before the population can increase or capture and transport can be implemented.

All other options the Applicant explored are constrained by a high level of uncertainty and high costs. Other options, including ladders, fish locks, and pressure chambers designed to move sturgeon upstream and downstream, have many biological uncertainties. The other options rely on volitional response of sturgeon to migrate. This is very likely to fail because it is known that sturgeon migrate on a very infrequent basis. The engineering challenges associated with other options are very high. There are few successful prototypes anywhere in the world to use as engineering models for the other options.

Recommendations

The BLM should support the capture and transport option when water quality issues are adequately addressed. Oxygen levels in the Hells Canyon reservoirs must be improved drastically during the summer months.

If water quality issues can be addressed, the strategy appears to be biologically and economically feasible. The solution presented is reasonable, simple, and affordable. The

trap and transport option also provides the scientist the opportunity to gather additional data on the white sturgeon population. The added data can be used to better manage the population in the long-term.

However, the need to improve water quality may limit the implementation of this strategy. All agencies responsible for water quality and sturgeon management should require the Applicant to invest money in improving water quality within the Hells Canyon Complex. There is a potential that water quality issues will delay efforts to implement the white sturgeon trap and transport plan for decades.